

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LXXIX

Harold N. Moldenke

SYNGONANTHUS ULEI var. GOYAZENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 38: 50. 1977.

Citations: BRAZIL: Goiás: Irwin, Harley, & Smith 3266h in part (N--isotype, Z--type).

SYNGONANTHUS UMBELLATUS (Lam.) Ruhl. in Urb., Symb. Antill. 1: 488. 1900.

Synonymy: Eriocaulon umbellatum Lam., Encycl. Méth. Bot. 3: 277. 1789 [not E. umbellatum Bong., 1831, nor Humb., 1826, nor Humb. & Bonpl., 1817, nor H.B.K., 1817, nor Humb. & Kunth, 1852, nor Kunth, 1841 & 1852]. Eriocaulon umbellatum Lam. apud Willd. in L., Sp. Pl., ed. 4, 1: 487. 1797. Paepalanthus umbellatus Kunth, Enum. Pl. 3: 537. 1841. Dupatya umbellata (Lam.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Paepalanthus umbellatus Huber, Bol. Mus. Para. 2: 499, sphalm. 1898. Dupatya umbellata Kuntze apud Ruhl. in Urb., Symb. Antill. 1: 487, in syn. 1900. Syngonanthus umbellatus Ruhl. apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 180. 1904. Paepalanthus umbellatus Kunth ex Moldenke, Résumé 328, in syn. 1959.

Bibliography: Lam., Encycl. Méth. Bot. 3: 277. 1789; Lam., Tabl. Encycl. Méth. Bot. [Illustr.] 1: 214, pl. 50, fig. 4. 1791; Henckel, Nom. Bot. 68. 1797; Willd. in L., Sp. Pl., ed. 4, 1: 487. 1797; Pers., Syn. Pl. 1: 111. 1805; Willd. in L., Sp. Pl. ed. 4, 4: 487. 1805; Pers., Sp. Pl. 1: 284. 1817; Roem. & Schult. in L., Syst. Veg., ed. 15 nov., 2: 867-868. 1817; Steud., Nom. Bot. Phan., ed. 1, 313. 1821; Poir. in Cuvier, Dict. Sci. Nat. 24: 240-241. 1822; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Bong., Ess. Monog. Erioc. 33. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633. 1831; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 537, 578, 614, & 625. 1841; Klotzsch in Schomb., Vers. Fauna & Fl. Brit.-Guian. [Reise Brit.-Guian. 3:] 1064 & 1116. 1848; D. Dietr., Syn. Pl. 5: 263. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 275 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 445-446, 505, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Huber, Bol. Mus. Para. 2: 499. 1898; Ruhl. in Urb., Symb. Antill. 1: 487-488. 1900; N. E. Br., Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 72. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 246, 261-263, 284, 287, 292, & 293. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 180. 1904; Britton & Br., Illustr. Fl., ed. 2, imp. 1, 1: 455. 1913; Alv. Silv., Fl. Mont. 1: 420. 1928; Stapf, Ind. Lond. 3: 91. 1930; Herzog in Fedde,

Repert. Spec. Nov. 29: 212. 1931; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 2, 1: 455. 1936; J. F. Macbr., *Field Mus. Nat. Hist. Publ. Bot.* 13 (363): 492. 1936; Moldenke, *N. Am. Fl.* 19: 45. 1937; Uittien & Heyn in Pulle, *Fl. Surin.* 1 [Meded. Konink. Ver. Ind. Inst. 30, Afd. Handelsmus. 11]: 220—222. 1938; Fedde & Schust. in Just, *Bot. Jahresber.* 59 (2): 20. 1939; Moldenke, *Carnegie Inst. Wash. Publ.* 522: 144. 1940; Durand & Jacks., *Ind. Kew. Suppl.* 1, imp. 2, 145. 1941; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 3, 1: 455. 1943; Castell. in Descole, *Gen. & Sp. Pl. Argent.* 3: [91] & 104. 1945; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, *Alph. List Cit.* 1: 132. 1946; Moldenke, *Known Geogr. Distrib. Erioc.* 5--7, 19, 30, 31, 41, 50, 55, & 60. 1946; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 4, 1: 455. 1947; Moldenke, *Phytologia* 2: 352 & 381 (1947) and 2: 403 & 499. 1948; Moldenke in Maguire & al., *Bull. Torrey Bot. Club* 75: 203. 1948; Moldenke, *Alph. List Cit.* 2: 352, 460, & 610 (1948), 3: 701, 702, 744, 892, 905, 945, & 975 (1949), and 4: 1076, 1079, & 1219. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 61, 65, 67, 68, 93, 95, & 214. 1949; Moldenke, *Phytologia* 4: 332--333. 1953; Moldenke in Steyer., *Fieldiana Bot.* 28: 824. 1957; Durand & Jacks., *Ind. Kew. Suppl.* 1, imp. 3, 145. 1959; Moldenke, *Résumé* 57, 69, 74, 76--78, 109, 112, 282, 293, 328, 352, & 493. 1959; Moldenke, *Résumé Suppl.* 1: 5, 7, & 23. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; K. Jones, *Taxon* 9: 187. 1960; Van Donselaar, *Wentia* 14: 70. 1965; Huinink, *Wentia* 17: 140--141. 1966; J. A. Steyer., *Act. Bot. Venez.* 1: 247. 1966; Kramer & Van Donselaar, *Meded. Bot. Mus. Herb. Rijksuniv. Utrecht* 309: opp. 500, 502, & 509, tab. 1 & 2. 1968; Van Donselaar, *Meded. Bot. Mus. Rijksuniv. Utrecht* 306: 402. 1968; Lindeman & Górts-van Rijk in Pulle & Lanjouw, *Fl. Surin.* 1: 334. 1968; Moldenke, *Résumé Suppl.* 18: 12. 1969; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 149. 1969; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 5, 1: 455. 1970; Moldenke, *Phytologia* 20: 80. 1970; Teunissen & Wildschut, *Verh. Konink. Nederl. Akad. Wet. Natuurk.* 59 (2): 23, 36, 46, & table 1. 1970; Anon., *Biol. Abstr.* 52 (2): B.A.S.I.C. S.231 (1971) and 52 (3): B.A.S.I.C. S.228. 1971; Moldenke, *Biol. Abstr.* 52: 714 & 1316. 1971; Moldenke, *Excerpt. Bot. A.* 18: 445. 1971; Moldenke, *Fifth Summ.* 1: 103, 120, 128, 131, 133, 134, 176, 180, & 486 (1971) and 2: 515, 518, 592, 593, 638, & 965. 1971; Teunissen & Wildschut, *Meded. Bot. Mus. Utr.* 341: 23, 36, 46, & table 1. 1971; Angely, *Fl. Anal. & Fitogeogr. Est. S. Paulo*, ed. 1, 6: 1161, 1163, & 1164, map 1785, & *Ind.* 28. 1972; Rouleau, *Taxon Index Vols.* 1--20 part 1: 139. 1972; Moldenke, *Phytologia* 28: 461 (1974), 29: 77 & 318 (1974), and 31: 383 & 405. 1975; Moldenke & Sm. in Reitz, *Fl. Ilus. Catar. I Erioc.*: 100. 1976; Moldenke, *Phytologia* 35: 303, 306, & 307 (1977), 36: 35, 42, 47, & 75 (1977), 37: 81, 88, 89, & 258 (1977), and 38: 48. 1977.

Illustrations: Lam., *Tabl. Encycl. Méth. Bot.* 1: pl. 50, fig. 4. 1791.

This is the type species of the genus and appears to have a

most remarkable disjunct distribution in northern South America and the Dominican Republic. Its occurrence on the island of Hispaniola was originally based on a Meyerhoff collection in the Berlin herbarium which was cited by Ruhland from Hispaniola in 1900 and 1903 with a question ["Hab. in Hispaniola (an re vera ex hac insula, an e Guiana?)"] and "ob nicht vielmehr aus Guiana?"] , but has since also been collected there by Ekman and distributed by him as "Eriocaulon n. sp."

Recent collectors describe S. umbellatus as seen by them in the field as a small herb, 15--40 cm. tall, the leaves tufted in a basal rosette, the peduncles 5--6 cm. long, the inflorescence capitate, grayish or grayish-white to silvery-white, the bracts white, and the flowers white. They have found it growing in damp, wet, or periodically wet white sand on campos, in low wet places, in open and "southern wet savannas", in coarse sand of disturbed white-sand savannas, in wet ground along streams, at the base of Mauritia palms, and in white sand of open xeromorphic scrub. In Guyana Cowan refers to it as "locally frequent" in moist open savannas, Mori and his associates found it "very common", while Goodland encountered it in "Muri scrub grassland with scattered trees, the dominants being Curatella, Byrsonima, Trachypogon, and Fimbristylis". In Surinam Went found it in the Kyrião-Paspaleum association, Teunissen & Wildschut (1970) found it growing with Panicum froesii, and Irwin and his associates describe it as "locally abundant in drier areas of savannas", while my wife and I found it to be extremely abundant and widespread on the Zandery Savanna. Kramer & Van Donselaar (1968) assert that S. umbellatus, along with Drosera capillaris and Utricularia fimbriata, in northern Surinam characterizes the alliance Syngonantho-Xyridion while in southern Surinam and in French Guiana it occurs in other ecologic alliances of the order Paspalealia pulchelli on open savannas. They refer to it as "Not rare" there. Other collectors in Surinam refer to it as "common in moist sand along railroad tracks" and "frequent on grass savannas". On Marajo island Swallen encountered it "on sandy ground in low open forest, edge of wet campo", while in Amapá, Brazil, Murça Pires describes it as "common in wet sandy savannas". It has been collected at altitudes of 18--425 meters, flowering from March to January, and in fruit from September to November.

Common names reported for this species are "joncinelle à ombelle", "õ-tá", "ñõ'-ré", and "savanna gras".

The Eriocaulon umbellatum of Bongard, referred to in the synonymy above, is actually a synonym of S. helminthorrhizus (Mart.) Ruhl., while the homonym accredited to Humboldt, to Humboldt & Bonpland, to H.B.K., to Humboldt & Kunth, and to Kunth belongs in the synonymy of S. humboldtii (Kunth) Ruhl. The Angely (1972) work cited in the bibliography above is sometimes cited as published in "1970" (the title-page date), but did not actually get published until 1972. Angely regards S. umbellatus as endemic to Brazil, but it is known also from Colombia, Venezuela, Guyana,

Surinam, French Guiana, and the Dominican Republic. Kunth (1841) asks "An planta brasiliana vera eadem ac Lamarckiana?"

In his unpublished Flora of British Guiana Gleason describes S. umbellatus as "Basal leaves very numerous, cespitose, linear, 3--5 cm. long, thinly pubescent; umbels 1--3, on terete stalks 5--15 cm. long; subtending leaves 1--3 cm. long, narrowly linear, pubescent; peduncles very numerous, unequal, 5--15 cm. long; sheaths hirsute, 12--25 mm. long; heads subglobose, 5--8 mm. wide, whitish; bracts lanceolate, acuminate, finely ciliate". He cites Abraham 137, Alston 49 & 382, Appun 953, De la Cruz 4013, Hitchcock 16946, Jerman 1013, 2253, & 3703, Loyed 35, Quelch & McConnell 129, and Schomburgk 216 and gives its distribution as "Open sandy ground, common....(Guianas to southern Brazil)."

Silveira (1928) cites Huber 443 from Marajo Island, collected in 1899. Uittien & Heyn (1938) cite from Surinam: Boldingh 3911, B. W. 5206 & 5562, Essed s.n., Focke 101, Hostmann & Kappler 592a, Kegel 627 & 1471, Kuyper 27a, Lanjouw 340 & 375, Pfeiffer s.n., Pulle 29, Splitgerber 698, and Wullschlägel 761. Ruhland (1903) cites from Hispaniola Meyerhoff s.n. (with a question), from French Guiana Aublet s.n. and Martin s.n., from Surinam Hostmann & Kappler 592, 592a, & 592b, Kegel 227 & 1471, Splitgerber s.n., Wullschlägel s.n., and "Wischl" s.n. [certainly meant to be Wullschlägel!], from Guyana Schomburgk 216, and from Brazil Glaziou 12251 & 12252, Guedes 602, and Spruce 2531. He notes that "Var. brachyphylla Huber.....a type non differt".

Material of S. umbellatus has been misidentified and distributed in some herbaria as S. oblongus (Körn.) Ruhl. On the other hand, the Prance & Silva 58471, distributed as typical S. umbellatus, actually is the type collection of var. prancei Moldenke and Samuels s.n. [Forest of Zandery, May 31, 1916] is Paepalanthus fasciculatus (Rottb.) Kunth. Schultes & Cabrera 19704 is a mixture with S. tenuis (H.B.K.) Ruhl. Lützelburg 21957 is a co-type collection of f. latifolius Herzog, but the leaves as shown on the Macbride photograph do not agree as to width with the original description and the collection may therefore be a mixture of the typical form and f. latifolia. Admittedly Herzog's forms are not very distinct and may not deserve nomenclatural recognition.

Additional citations: HISPANIOLA: Dominican Republic: Ekman H.15867 (W--1555152); Meyerhoff s.n. (B). COLOMBIA: Amazonas: García Barriga & Schultes 14166 (N). Vaupés: Gutiérrez Villegas & Schultes 918 (N, W--1985674); Humbert & Schultes 27367 (P); Maguire, Maguire, & Fernandez 44130 (N); Schultes & Cabrera 18342 (S, Ss, W--2172127), 19004 (Id), 19644 (S, S, Ss, W--2172478, Z), 19646 (Ss), 19704 in part (N), 19918a (Ss). VENEZUELA: Bolívar: Killip 37355 (N); Maguire, Steyermark, & Maguire 53542 (N); Quezada s.n. [26/12/1959] (Em, Ve). GUYANA: Bolten s.n. [Mori &

Bolten 3288] (N); Carrick 972 (Kl--3972), 984 (Kl--3984); Cowan 39280 (N); Cowan & Soderstrom 1713 (Fg, N); J. S. de la Cruz 4013 (Ca--280231, Mi, W--1497076); Goodland 912 (Mi, N, N); S. G. Harrison 735 (K), 1126 (K); A. S. Hitchcock 16946 (W--1056147); Irwin 209 (W--2143740); Mori, Persaud, & Boyan 8024 (Ld, N); R. Schomburgk 216 (W--702586), s.n. (Ut--418); Tutin 683 (W--1743673); Univ. Georgetown Bio. 106-31 (N); Whitton 218 (K). SURINAM: Bol-
dingh 3911 (Ut--10670); Dalger, Gonggrijp, & Stahel 5562 (Ut--
44047A); Essed xxx (Ut--44050A); Florschütz & Florschütz 618 (Ut--
80221B), 648 (Ut--80218B); Focke 101 (Ut--384); Freund & Freund R-
33-B (W--2371505); Geijskes s.n. [2.V.1952] (Ut--309668); Herb. W.
Hans s.n. (B); Hostmann 592b (Ut--384); Irwin, Prance, Soderstrom,
& Holmgren 55268 (Mu, N, S), 57536 (N); Kappler 592a (B, B, Mu,
Ut--384), s.n. (B); Kegel 227 (B); Kuyper 27a (Ut--44052A), 38
(Ut--44045A); Lanjouw 340 [photo no. 60] (Ut--44048A), 375 [photo
no. 68] (Ut--44051A); Lanjouw & Lindeman 163 (Ut--17874B), 229
(Ut--17808B), 248 (Ut--17873B), 851 (Ut--17871B), 880 (N, Ut--
17878B), 955 (Ut--17869B), H.6 (Ut--17872B); Pülle 29 (Ut--44046A);
Samuels s.n. [May 31, 1916] (W--537966); Stahel 520b (Ut--44049A);
Van Donselaar & Van Donselaar 123 (Ut--936068). FRENCH GUIANA:
Collector undetermined 176 (B); Hallé 455 (N); Martin 176 (B), s.n.
[Cayenne] (N), s.n. (B). BRAZIL: Amapá: W. A. Egler 1419 [Herb.
Mus. Goeldi 24575] (Mi), 1426 [Herb. Mus. Goeldi 24582] (Mi);
Fróes 26743 (Z); Irwin & Westra 47257 (N); Maguire, Murça Pires, &
Maguire 47127 (N, S); Murça Pires & Cavalcante 52408 (N). Amazô-
nas: Black 48-3049 (Ut--97796A); Chagas s.n. [Herb. Inst. Nac.
Pesq. Amaz. 98; Herb. Brad. 4702] (Bs, Ld); Coêlho s.n. [Herb.
Inst. Nac. Pesq. Amaz. 1645] (Bs); Guedes 73 (Ca--59922), 74 (W--
2248342); Killip & Smith 30084 (W--1464092); Luiz s.n. [Herb.
Brad. 47020] (Ld); Lützelburg 21957 in part (S); Maas & Maas 456
(Ld, N); W. Rodrigues 486 [Herb. Inst. Nac. Pesq. Amaz. 5660]
(Bs). Minas Gerais: Maguire, Mendes Magalhães, & Maguire 47130
(N, S). Pará: Black 54-16759 (Bm); Black & Ledoux 50-10380 (Z),
50-10610 (Z), 50-10630 (Z); Ducke 8470 (Bs), 11330 (Gl), 11444
(Bs), 11633 (Bs), 11685 (Bs), 11878 (Bs), 12583 (Bs), 12624 (Bs),
14847 (Bs), s.n. [Herb. Mus. Goeldi 11946] (Bs); W. A. Egler 217
[Black 19501] (Bs); Goeldi 15064 (Bs); Herb. Mus. Goeldi 9799
(Bs); D. A. Lima 53-1274 (Be--80814); Lützelburg 23644 (Mu), 23761
(Mu); Murça Pires, Black, Wurdack, & Silva 6187 (N); Murça Pires &
Silva 4265 (N), 4717 (N, W--2252823); E. Pereira 4996 [Herb. Brad.
12472] (Lw). Roraima: Black s.n. [IX.1952] (Be--77603). MARAJÓ
ISLAND: Swallen 4931 (Mi, W--1592048). LOCALITY OF COLLECTION UN-
DETERMINED: Herb. Inst. Agron. Norte 14 (Z). MOUNTED ILLUSTRA-
TIONS: drawings by Körnicke (B).

SYNGONANTHUS UMBELLATUS f. BRACHYPHYLLUS (Huber) Moldenke, *Phytologia* 20: 243. 1970.

Synonymy: Paepalantus umbellatus f. brachyphylla Huber, *Bol. Mus. Para.* 2: 499. 1898.

Bibliography: Huber, *Bol. Mus. Para.* 2: 499. 1898; Ruhl. in *Engl., Pflanzenreich* 13 (4-30): 262 & 293. 1903; Moldenke, *Phytologia* 20: 243. 1970; Anon., *Biol. Abstr.* 52 (2): B.A.S.I.C. S.231. 1971; Moldenke, *Biol. Abstr.* 52: 714. 1971; Moldenke, *Excerpt. Bot. A.* 18: 445. 1971; Moldenke, *Fifth Summ.* 1: 176 (1971) and 2: 593 & 965. 1971; Moldenke, *Phytologia* 28: 461 (1974) and 36: 47. 1977.

Huber's original (1898) description of this form is "(602) foliis minoribus (3 cm longis), superioribus haud deflexis. Rio Maracá". Ruhl. (1903) asserts that the form does not differ from the typical form of the species. This may be true, but I would like to see the type collection before deciding. In general, Herzog's proposed taxa in this group are poorly defined.

SYNGONANTHUS UMBELLATUS f. LATIFOLIUS Herzog in Fedde, *Repert.*

Spec. Nov. 29: 213 [as "latifolia"]. 1931.

Synonymy: Syngonanthus umbellatus f. latifolia Herzog in Fedde, *Repert. Spec. Nov.* 29: 213. 1931.

Bibliography: Herzog in Fedde, *Repert. Spec. Nov.* 29: 213. 1931; Fedde & Schust. in *Just, Bot. Jahresber.* 59 (2): 20. 1939; Moldenke, *Known Geogr. Distrib. Erioc.* 19 & 60. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 93 & 214. 1949; Moldenke, *Résumé* 109, 352, & 493. 1959; Moldenke, *Résumé Suppl.* 1: 5 & 7. 1959; Moldenke, *Fifth Summ.* 1: 131 & 176 (1971) and 2: 638 & 965. 1971.

Herzog's original (1931) description of this form is "differt a typo foliis latioribus, ad 6 mm. latis. Alto Amazonas: Manaus Villa Municipal Sand, Campos (n. 21957); Manaus, Flore auf Sand (n. 21990)". It should be noted that the Stockholm herbarium sheet of Lützelburg 21957 does not have the broad leaves described by Herzog, yet is part of the type collection; probably that collection is a mixture of this form and the typical form of the species. Tutin 683 shows the broad leaves very well, although originally distributed as typical S. umbellatus (Lam.) Ruhl.

The form has been collected on white sand and in wet sandy rather shady patches on savannas, at 1100 feet altitude, flowering and fruiting in August. The flowers are described as "white" by collectors.

Citations: GUYANA: Tutin 683 (Ut--39712A). BRAZIL: Amazonas: Lützelburg 21895 (Mu), 21957 in part [N. Y. Bot. Gard. Type Neg. N. S. 8878] (Mu--type, N--photo of type, Z--isotype, Z--photo of type), 21990 (Mu).

SYNGONANTHUS UMBELLATUS var. LIEBMANNIANUS (Körn.) Ruhl. in *Engl., Pflanzenreich* 13 (4-30): 262 [as "Liebmanniana"]. 1903.

Synonymy: Paepalanthus liebmannianus Körn. in *Mart., Fl. Bras.*

3 (1): 444. 1863. Dupatya liebmanniana (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya liebmanniana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus umbellatus var. liebmanniana (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 262. 1903.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 444 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 262 & 293. 1903; Alv. Silv., Fl. Mont. 1: 420. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 19, 30, 50, & 60. 1946; Moldenke, Phytologia 2: 493 & 499. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 93 & 214. 1949; Moldenke, Phytologia 4: 333. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 109, 281, 326, 352, & 493. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 176 & 482 (1971) and 2: 585, 638, & 966. 1971.

This variety is typified by Riedel 2349 from swamps at Franca, São Paulo, Brazil, deposited in the Leningrad herbarium. Ruhland (1903) cites also a Lund collection deposited in the Copenhagen herbarium where it was photographed by Macbride as his type photograph number 22286. Ruhland describes the variety as "Differt a forma typica vaginis paullo densius villosis, foliis ramorum longioribus; bracteis involucrentibus glandulifero-pilosis, rigidis, aureo-flavidis". I have found the best characters to be (1) the bracts glanduliferous-pilose rather than puberulent and (2) the basal leaves tiny, short, only 1 cm. long even during the anthesis and fruiting stages of the plant.

Silveira (1928) cites his no. 418 from Franca, São Paulo, collected in 1893.

Additional & emended citations: BRAZIL: Goiás: Lützelburg 1441a (Mu). São Paulo: Lund s.n. [Macbride photos 22286] (N--photo, W--photo); Riedel 2349 (B--isotype, Lu--isotype, Ut--385--isotype).

SYNGONANTHUS UMBELLATUS f. MINOR (Miq.) Moldenke, Phytologia 29: 77. 1974.

Synonymy: Paepalanthus umbellatus f. minor Miq. in sched. impr. mult. ed Hohenacker Pl. Hostm. & Kappl. 592b ex Moldenke, Phytologia 29: 77, in syn. 1974.

Bibliography: Moldenke, Phytologia 29: 77 (1974) and 31: 383 & 405. 1975.

This form differs from the typical form of the species in its much smaller stature. Miquel's trinomial is not listed in the Gray Herbarium cards of new names for American plants even though it occurs in printed form, with the required Latin diagnosis, on many specimens of Hohenacker's distribution in the typical exsiccatae fashion so widely used in mycology. It is based on Hostmann & Kappler [or just "Kappler"] 592b from "arenosis" in Suri-

nam, collected in May, 1844. Mori and his associates encountered what appears to be this variety, with very short leaves, on wet white sand of savannas, flowering and fruiting in September, the anthers described by them as "purple".

Citations: SURINAM: Kappler 592b [N. Y. Bot. Gard. Type Neg. N. S. 8876] (Mu--isotype, N--photo of isotype, Z--photo of isotype); Mori, Bolten, & Jansma 8325 (N, Z).

SYNGONANTHUS UMBELLATUS var. PRANCEI Moldenke, Phytologia 20: 80. 1970.

Bibliography: Moldenke, Phytologia 20: 80. 1970; Anon., Biol. Abstr. 52 (3): B.A.S.I.C. S.228. 1971; Moldenke, Biol. Abstr. 52: 1316. 1971; Moldenke, Excerpt. Bot. A.18: 445. 1971; Moldenke, Fifth Summ. 1: 176 (1971) and 2: 966. 1971.

Much of the material of the type collection of this variety has been distributed erroneously in various herbaria as representing typical S. umbellatus (Lam.) Ruhl.

Citations: BRAZIL: Goiás: Prance & Silva 58471 (N--type, S--isotype, W--2584609A--isotype).

SYNGONANTHUS VARESCHII Moldenke, Act. Biol. Venez. 2 (7): 50. 1957.

Bibliography: Moldenke, Act. Biol. Venez. 2 (7): 50. 1957; Anon., Biol. Abstr. 32: 2917. 1958; J. A. Clark, Card-Ind. Gen. Sp. & Var. Pl. issue 228. 1958; Moldenke, Résumé 74 & 493. 1959; G. Taylor, Ind. Kew. Suppl. 13: 132. 1966; Moldenke, Fifth Summ. 1: 128 (1971) and 2: 966. 1971.

This species is based on Vareschi & Foldats 4576, from Guayacara, Auyantepui, at 1100 m. altitude, Bolívar, Venezuela, collected in April, 1956, and deposited in the herbarium of the Instituto Botánico de Venezuela in Caracas. The type specimen was apparently closely grazed by some animal because most of its leaves are abruptly truncated at their apex. About 12 staminate florets were present in the two heads examined, but only a single pistillate one (and that one was in very poor condition). Therefore the pistillate floral characters are very uncertain. More and better material is needed. Vareschi 6780 is placed here tentatively with some doubt.

Steyermark and Bunting encountered S. vareschii growing "terrestrially in dense clumps on moist sand" at 125 m. altitude.

Citations: VENEZUELA: Amazonas: Steyermark & Bunting 102837 (Z); Vareschi 6780 (N). Bolívar: Vareschi & Foldats 4576 (N--isotype, V--type, Z--isotype).

SYNGONANTHUS VENEZUELENSIS Moldenke, Phytologia 2: 352 & 381, nom. nud. 1949; Alph. List Cit. 3: 975, hyponym. 1949; Fieldiana Bot. 28: 128--129. 1951.

Bibliography: Moldenke, Phytologia 2: 352 & 381. 1947; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65 & 214. 1949; Moldenke, Fieldiana Bot. 28:

128--129. 1951; Moldenke, *Phytologia* 4: 333. 1953; J. A. Steyermark, *Fieldiana Bot.* 28: 1158. 1957; Moldenke, *Résumé* 74 & 493. 1959; G. Taylor, *Ind. Kew. Suppl.* 12: 138. 1959; J. A. Steyermark, *Act. Bot. Venez.* 1: 40 & 247. 1966; Moldenke, *Fifth Summ.* 1: 128 (1971) and 2: 966. 1971.

This species is based on J. A. Steyermark 59347 from a sandy wet meadow on a large mesa in the Gran Sabana between the Mission of Santa Teresita de Kavanayén northwest and the Río Karauí, Bolívar, Venezuela, at 1220 m. altitude, on October 26, 1944. Superficially this peculiar species greatly resembles some of the very dwarf matted species of Paepalanthus.

SYNGONANTHUS VENUSTUS Alv. Silv., *Fl. Mont.* 1: 366--368, pl. 232. 1928.

Synonymy: Paepalanthus venustus Alv. Silv., *Fl. Mont.* 1: pl. 232, sphalm. 1928 [not P. venustus Moldenke, 1957].

Bibliography: Alv. Silv., *Fl. Mont.* 1: 366--368 & 420, pl. 232. 1928; Wangerin in Just, *Bot. Jahresber.* 57 (1): 478. 1937; Fedde in Just, *Bot. Jahresber.* 57 (2): 896. 1938; A. W. Hill, *Ind. Kew. Suppl.* 9: 272. 1938; Worsdell, *Ind. Lond. Suppl.* 2: 426. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 19 & 60. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 93 & 214. 1949; Moldenke, *Phytologia* 4: 333. 1953; Moldenke, *Résumé* 109, 329, & 492. 1959; Moldenke, *Fifth Summ.* 1: 176 (1971) and 2: 592 & 966. 1971; Moldenke, *Phytologia* 35: 264 & 450. 1977.

This species is based on A. Silveira 523 from "In campis arenosis prope Diamantina", Minas Gerais, Brazil, collected in April, 1908, and deposited in the Silveira herbarium. In his original (1928) description Silveira refers to "Tabula CCXXXIII" as illustrating this species, but that illustration depicts S. canastrensis Alv. Silv. Syngonanthus venustus is illustrated on "TABULA CCXXXII". Silveira notes that the "Species ob indumentum foliorum vaginarumque ab affinibus valde distincta. A S. Rupprechtiano (Koern) Ruhl. non solum illo indumento sed etiam foliis latioribus facile recedit". It appears to have considerable habitual resemblance to S. erectifolius Alv. Silv. and S. niveo-aureus Alv. Silv.

Additional citations: BRAZIL: Minas Gerais: E. Pereira 2312 [Pabst 3648; Herb. Brad. 3838] (Z).

SYNGONANTHUS VERTICILLATUS (Bong.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 262. 1903.

Synonymy: Eriocaulon verticillatum Bong., *Mém. Acad. Imp. Sci. St. Pétersb.*, ser. 6, 1: 633, pl. 8. 1831. Paepalanthus verticillatus (Bong.) Kunth, *Enum. Pl.* 3: 536. 1841. Paepalanthus verticillatus Kunth apud Körn. in Mart., *Fl. Bras.* 3 (1): 309. 1863. Paepalanthus verticillatus var. α Körn. in Mart., *Fl. Bras.* 3 (1): 449--450. 1863. Paepalanthus verticillatus var. β Körn. in Mart., *Fl. Bras.* 3 (1): 449--450. 1863. Dupatya verticillata (Bong.) Kuntze, *Rev. Gen. Pl.* 2: 746. 1891. Dupatya verticillata

Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Mutia verticillata Mart. ex Moldenke, Résumé Suppl. 1: 19, in syn. 1959. Paepalanthus verticillatus var. ♂ Kunth ex Moldenke, Résumé Suppl. 1: 22, in syn. 1959. Syngonanthus verticillatus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus verticillatus (Kunth) Ruhl. ex Moldenke, Résumé Suppl. 1: 23, in syn. 1959. Paepalanthus verticillatus Mart. ex Moldenke, Phytologia 31: 405, in syn. 1975.

Bibliography: Bong., Ess. Monog. Erioc. 33 & 49—51, pl. 8. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633 & 649, pl. 8. 1831; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 536, 578, 614, & 625. 1841; D. Dietr., Syn. Pl. 5: 263. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 309, 449—451, 501, & 507, pl. 44, fig. 2. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1023. 1883; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 246, 262, 284, 288, 292, & 294. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 420. 1928; Stapf, Ind. Lond. 3: 91 (1930) and 4: 519. 1930; Moldenke in Gleason & Killip, Brittonia 3: 159. 1939; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Alph. List Cit. 1: 223. 1946; Moldenke, Known Geogr. Distrib. Erioc. 19, 31, 41, 55, & 60. 1946; Moldenke, Phytologia 2: 352. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65, 93, & 214. 1949; Moldenke, Phytologia 4: 334. 1953; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 236—237. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 74, 109, 282, 293, 329, & 493. 1959; Moldenke, Résumé Suppl. 1: 19, 22, & 23. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 72. 1960; Moldenke, Fifth Summ. 1: 128 & 486 (1971) and 2: 516, 572, 592, 638, & 966. 1971; Moldenke, Phytologia 31: 405 (1975) and 35: 453. 1977.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: [Ess. Monog. Erioc.] pl. 8. 1831; Körn. in Mart., Fl. Bras. 3 (1): pl. 44, fig. 2. 1863.

This species is based on L. Riedel 1033 from "In arenosis humidis Serra da Lapa", Minas Gerais, Brazil, probably deposited in the Leningrad herbarium. Bongard's original (1831) description is "Caulescens; caule erecto, simplici, folioso; foliis radicalibus confertis linearibus, acutis, pubescentibus; caulibus dense verticillatis; pedunculis fasciculatis; vaginis glabris". This description was considerably amplified by Kunth (1841), who cites only the original collection and notes "An vere hujus loci ob sepala mascula interiora libera?, praecedenti tamen ob habitum simillimus". Körnicke's var. ♂ represents the typical variety of the species. Kunth says "vaginibus pubescentibus"; Ruhland (1903) says "vaginae....dense patenti-puberulae vel hirsutae".

The latter authority cites Weddell 2140 from Goiás, and from Minas Gerais Glaziou 19979, Martius s.n., Riedel 1033, and Schwacke 8474.

Collectors describe this species as an herb, 20-50 cm. tall, the heads sordid-white during anthesis, tan, straw-color, or yellow-brown in fruit. They have encountered it in open places on dry or marshy sandy campos and in wet sandy places in general, at altitudes of 1200--1400 m., flowering from January to May as well as in November, fruiting in January and April. Anderson and his associates found it growing in "wet sand on gently sloping hillside with sandy soil and sandstone boulders, mostly wet with seeping water, and rocky areas along rushing stream at base of hill"; Silva found it "very frequent on sandstone outcrops", while Irwin and his associates found it "on creek-margins in region of high campo slopes, outcrops, and creek margins", "in soil-filled crevices on steep rocky slopes", "in wet ground of cerrado in narrow valleys", "on rocky slopes, cerrado with exposed sandstone cliffs and outcrops", and "in wet places near campo creek in disturbed slope forest and adjacent rocky campo".

It should be noted that the label accompanying Irwin & al. 20452 is inscribed "leafless subshrub, corollas cream" and may represent a case of labels accidentally mixed during mounting; their no. 22231 is a particularly important collection since it exhibits both immature and mature inflorescences.

Bongard's (1831) illustration of this species is cited by Stapf (1930) to volume "1 (6)". Mutia verticillata, as well as the genus Mutia itself, appear to be based on Martius s.n. [dist. Adamantium] in the Munich herbarium. Silveira (1928) cites A. Silveira 217 from Diamantina, Minas Gerais, collected in 1908.

Additional & emended citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35459 (Ld, N); Brade 13605 [Herb. Jard. Bot. Rio Jan. 25393] (B); A. P. Duarte 7801 [Herb. Brad. 27773] (Lw); Glaziou 19979 (Br, C, W--1124164); Hatschbach 31562 (W--2706690); Hatschbach & Ahumada 31562 (Ld, N); Heringer & Castellanos 6117 (B); Irwin, Maxwell, & Wasshausen 20252 (Ld, N, W--2759023), 20452 (Ld), 20797 (Ac, N); Irwin, Reis dos Santos, Souza, & Fonseca 22231 [Herb. Brad. 58708] (Ac, Mu, N), 22664 (Ld, N); Martius s.n. [In editis supra Itacolumnit. sax. prope Mainarde, in distr. adamant. rel. Apr. Maio 1818] (Mu), s.n. [distr. Adamantium] (Mu); Nello Barreto 2515 [Herb. Jard. Bot. Belo Horiz. 8267; Herb. U. S. Nat. Arb. 236391] (W--2109986); E. Pereira 2827 [Pabst 3663; Herb. Brad. 3843] (Z); L. Riedel 1033 (B--isotype, Mu--isotype, Ut--387--isotype); Segadas-Vianna 6010 (Sm); J. B. Silva 587 [Herb. Set. Lag. 724] (Ba, Ld).
MOUNTED ILLUSTRATIONS: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: pl. 8. 1831 (N, Z); Körn. in Mart., Fl. Bras. 3 (1): pl. 44, fig. 2. 1863 (N, Z); Körn., Mart. Fl. Bras. orig. in color, pl. 189 (B); drawings by Körn. in Mart. (B).

SYNGONANTHUS WAHLBERGII (Wikstr.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 247. 1903.

Synonymy: Eriocaulon wahlbergii Wikstr. ex Körn. in Mart., Fl. Bras. 3 (1): 439, in syn. 1863. Paepalanthus wahlbergii (Wikstr.) Körn. in Mart., Fl. Bras. 3 (1): 459. 1863. Paepalanthus wahlbergii Körn. in Mart., Fl. Bras. 3 (1): 503 & 504. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 27. 1888. Dupatya wahlbergii (Wikstr.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya wahlbergii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus wahlbergii Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus chevalieri H. Lecomte, Bull. Soc. Bot. France 55: 595 & 597. 1909. Syngonanthus wahlbergii (Koern.) Ruhl. apud Richards & Morony, Check List Fl. Mbala 262. 1969.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 459—460, 503, 504, & 508. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 27. 1888; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 403. 1894; Durand & Schinz, Consp. Fl. Afr. 5: 504. 1894; N. E. Br. in Thiselet.-Dyer, Fl. Cap. 7: 52, 59, & 782. 1897; Rendle, Cat. Afr. Pl. Welw. 2 (1): 102. 1899; N. E. Br. in Thiselet.-Dyer, Fl. Trop. Afr. 8: 262 & 263. 1902; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 243, 247, 284, 288, 292, & 294. 1903; Pilger in Engl. & Prantl, Nat. Pflanzenfam. Ergänzt. 2, Nachtr. 3 zu 2: 41. 1908; Prain, Ind. Kew. Suppl. 3: 175. 1908; H. Lecomte, Bull. Soc. Bot. France 55: 595. 1909; Prain, Ind. Kew. Suppl. 4, imp. 1, 230. 1913; T. C. E. & R. E. Fries in R. E. Fries, Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped. 1911-12 Bot. 1: 219. 1916; Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 328. 1931; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 21, 22, 31, 41, 55, 57, & 60. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 113, 117, 119, 122, 212, & 214. 1949; Erdtman, Pollen Morph. & Pl. Tax., ed. 1, 163. 1952; Moldenke, Phytologia 4: 334. 1953; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 144, 157, 192, & 198, pl. 9, fig. 2, 3, 4, 11, 12, & 14. 1955; Prain, Ind. Kew. Suppl. 4, imp. 2, 230. 1958; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 135, 138, 142, 145, 147, 149, 154, 282, 293, 329, 351, 352, & 493. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 4: 7. 1962; Thanikaimoni, Pollen & Spores 7: 181. 1965; Erdtman, Pollen Morph. & Pl. Tax., ed. 2, 163. 1966; Astle, Kirkia 7: 94. 1968; Meikle in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 67. 1968; Moldenke, Phytologia 17: 384 (1968) and 18: 390. 1969; Richards & Morony, Check List Fl. Mbala 262. 1969; Moldenke, Phytologia 19: 458 & 470. 1970; Erdtman, Pollen Morph. & Pl. Tax., ed. 3, 163. 1971; Moldenke, Fifth Summ. 1: 215, 222, 227, 231, 238, 244, 246, 248, 257,

& 487 (1971) and 2: 516, 579, 592, 636, 638, 961, & 966. 1971; Lewalle, Bull. Jard. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: [237]. 1972; Moldenke, Phytologia 25: 231. 1973; Lewalle, Boissiera 24: 88. 1975; Moldenke, Phytologia 31: 405 (1975), 34: 278 (1976), 35: 308 & 314 (1977), 36: 36, 47, 83, & 93 (1977), 37: 267 (1977), and 38: 26 & 34. 1977.

Illustrations: H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 198, pl. 9, fig. 2--4, 11, 12, & 14. 1955.

This species is based on J. A. Wahlberg 18 from Goda, Cape Province, South Africa, deposited in the Stockholm herbarium. Syngonanthus chevalieri was based on A. Chevalier 6818, collected "bei Chari oriental, Source de Ndellé" in what is now the Central African Republic on February 19 or 20, 1902, deposited in the Paris herbarium. Hess (1955) has examined this material and reports that "Die Analyse des gut entwickelten und reichlich gesammelten Typus-Material zeigt eine vollständige Übereinstimmung mit S. Wahlbergii".

An unsigned undated memorandum in the herbarium of the New York Botanical Garden states that "The Wahlberg specimen of Syngonanthus wahlbergii (Wickstr. ex Koern.) Ruhl. is not at Kew, but the two additional collectings ('Zeyher 74 and 1730') cited by Koernicke and Ruhland are both represented [there].

"With regard to these specimens, Koernicke has made two blunders which Ruhland has copied: In the first place, Zeyher 74 is not a Syngonanthus and does not come from Megaliesberg; Koernicke almost certainly intended Burke 74, which comes from this area and which agrees with Zeyher 1730. Secondly, neither Burke 74 nor Zeyher 1730 are quite glabrous, and all the specimens named S. wahlbergii at Kew bear hairs and stalked glands in varying quantity, immature specimens being frequently densely glandular, and mature or overripe specimens almost glabrous. Drawings of the Burke and Zeyher specimens are enclosed. The mid-portions of the peduncles are glabrous or almost so with glandular indumentum chiefly confined to apices. The sheaths of both specimens here and there thinly pilose, those of the Zeyher specimen being almost glabrous. It should be remembered that both are mature fruiting specimens. I have little doubt that they would be more densely glandular in the young state. There is no significant difference in the size of the capitula of S. African and Tropical African specimens of S. wahlbergii. It is of course possible that the Wahlberg specimen may be distinct, and that Koernicke has confused more than one species under one name. As the Wahlberg specimen must be regarded as the type, examination would be desirable. S. schlechteri has smaller, white capitula, and long stalked glands on peduncles. I think it is distinct from Tropical and S. African S. wahlbergii sens. Fl. Trop. Afr."

Syngonanthus wahlbergii is described by recent collectors as an herb, 5--10 cm. tall, the leaves glaucous-green, forming rosettes, the heads brown, and the flowers white. Lewalle describes

it as an "herbe à feuilles en rosette gaine de la tige florale ciliée fl. ocre". It has been found growing in deep sand, in marshes, and in swamps, at altitudes of 800--2000 m., flowering from February to June, as well as in August, October, and December, fruiting in November and December. Brown (1902) reports it from "in spongy or marshy places", near streams, near river banks and in swamps, citing Barter 539 from Niger, Welwitsch 2454, 2455, & 2455b from Angola, and Mutt s.n. and Wilson 140 from Mozambique, noting that it is "Also in the Transvaal". Rendle (1899) refers to it as "Laxly caespitose, subflaccid, heads dull yellow" or "tawny gold", and reports it "Somewhat rare in spongy Sphagnum bogs near streams", in "Marshy, scarcely spongy, wooded meadows... growing with Burmannia and Anagallis pulchella", citing Welwitsch 276, 2454, 2455, and 2455b and a "COLL. CARP. 1064". Hess (1955) reports finding it growing along with Eriocaulon pictum Fritsch, E. teuscii Engl. & Ruhl., and E. transvaalicum N. E. Br. in Angola. He cites Hess 50/197, 50/218, 51/294, 52/278, 52/1858, 52/2028, 52/2048, 52/2056, 3319, 16653, & 16684. He comments that "Syngonanthus Wahlbergii wurde oft auf fast reinem, feuchtem Quarzsand gefunden.... Häufig wächst die Pflanze auch auf sandigmoorigen Boden, aber nur dort, wo dass Wasser nicht stagniert, also on Hängen oder Flussufern". He continues: "Das umfangreiche Herbarmaterial hat mich veranlasst, die Art....weiter zu fassen, als diese aus der Originaldiagnose hervorgeht. Eine Abtrennung systematischer Einheiten ist unmöglich, weil zwischen den Extremen der Merkmale kontinuierliche Übergänge vorhanden sind.

"Brakteen und Sepalen der Nummern 50/197, 51/294, 52/278, 52/1858, 52/2048 und 52/2056 sind hellbraun gefärbt, wie dies für Syngonanthus Wahlbergii typisch ist. Bei den Nummern 50/218 und 52/2028 sind die Brakteen und Sepalen gelblich bis weiss; rein weiss sind sie an Nummer 3319.....An den Blüten sind aber sonst keinerlei konstante morphologische Verschiedenheiten feststellbar. Die Sepalen ♂ Blüten sind auf dem Rücken gelegentlich zerstreut behaart; doch lässt sich dieses variierende Merkmal mit keiner andern Abweichung koppeln, so dass es systematisch nicht verwendbar ist.

"Vergleich man das Material der Nr. 50/197, das aus etwa 40 Pflanzen besteht, mit dem der Nr. 52/1858, das etwa 200 Exemplare umfasst (die Fundorte liegen etwa 1 km auseinander), so glaubt man zuerst, es handelt sich um zwei verschiedene Arten: die Pflanzen der No. 50/197 sind 6--9 cm hoch; die Halme haben einen Durchmesser von 0,3 mm, die Drüsenhaare sind 0,15 mm lang, die Behaarung mit spitzen Haaren ist spärlich, die Köpfe haben einen Horizontaldurchmesser von 4,5--5 mm. Die Pflanzen der Nr. 52/1858 sind gleich hoch, die Halme sind aber bloss 0,15 mm dick, dagegen sind die Drüsenhaare bis 0,3 mm lang, übrige Behaarung ist dicht, die Haare stehen nach unten und oben schief ab, der Horizontaldurchmesser der Blütenköpfe beträgt 3--3,5 mm.....

"Analysiert man das Material der verschiedenen Fundorte statistisch, so ergibt sich aus den einzelnen Zufallskurven für jedes Merkmal eine breite Variationskurve, durch die die Art abgegrenzt wird. Hätten nur die Extremen Formen am positiven und negativen Ende der Kurve zur Untersuchung vorgelegen, wären daraus wohl zwei Arten beschrieben worden. Das Beispiel zeigt deutlich, wie notwendig es ist, aus demselben Formenkreis immer wieder Material zu sammeln und vom gleichen Standort auch möglichst viele Exemplare mitzunehmen. Nur so ist es möglich, ohne experimentelle Untersuchungen einigermaßen Aufschluss über den Aufbau einer Art zu bekommen....."

"Syngonanthus Wahlbergii ist heute aus Nord-Nigerien, Chari, Tanganyika, Angola, Süd-Rhodesien, Transvaal und dem Kap der Guten Hoffnung bekannt.....Syngonanthus Wahlbergii steht S. Schlechteri Ruhl.....sehr nahe. Von letzterer Art....als einziger Unterschied gegenüber S. Wahlbergii ist das Fehlen der Anhängsel am Griffel bei S. Schlechteri zu erwähnen. Sonst stimmen die Einlagen von S. Schlechteri vollständig mit den gelb- bis weisköpfigen Varianten des S. Wahlbergii überein.

"Es wäre auch denkbar, dass es sich bei diesen Varianten um Bastardschwärme von Syngonanthus Schlechteri x S. Wahlbergii handeln könnte."

It should be noted here that Stapf (1931) dates the Pilger (1908) work cited in the bibliography above as "1906". The Lecomte (1909) work, sometimes cited as "1903", was presented at the November 13, 1908, meeting of the Society, but, according to the "Index Kewensis", was not actually published until 1909.

Lewalle (1972) cites Lewalle 5855 from Burundi; Astle (1968) cites Astle 543 from Zambia; the Frieses (1916) cite R. E. Fries 1055 & 1057 from Zambia; Erdtman (1966) cites Fries, Norlindh, & Weimarck 3770 from Rhodesia.

Meikle (1968) describes S. wahlbergii as "Plants usually forming crowded tufts; leaves narrowly linear-subulate, often distinctly recurved, and white-lanuginous at base; peduncles slender, wiry, minutely glandular (especially just below capitulum); flowers brownish, sometimes dark brown.....Widespread in tropical Africa and south to the Transvaal", citing only Barter 1539 from Northern Nigeria.

Material of S. wahlbergii has been misidentified and distributed in some herbaria as S. ngoweensis H. Lecomte or Eriocaulon africanum Hochst. On the other hand, the Devred 1872, Welwitsch 2454, and H. Wild 1551 [Govt. Herb. 16096], distributed as S. wahlbergii, seem better placed as S. ngoweensis H. Lecomte, although Hess (cfr. above) still regards the Welwitsch collection as S. wahlbergii.

Additional citations: BURUNDI: Lewalle 5938 (Ac), 6149 (Z). ANGOLA: Huila: Welwitsch 2455 (Mu), 2455b (Mu). RHODESIA: Fries, Norlindh, & Weimarck 3770 (S). SOUTH AFRICA: Cape Province: Wahl-

berg 18 (B--isotype, S--type). Transvaal: Zeyher 1730 (S).

MOUNTED ILLUSTRATIONS: drawings & notes by Körnigke (B).

SYNGONANTHUS WEDDELLII Moldenke, Phytologia 3: 425--426. 1951.

Bibliography: Moldenke, Phytologia 3: 425--426 (1951) and 4: 334. 1953; Moldenke, Résumé 109 & 493. 1959; G. Taylor, Ind. Kew. Suppl. 12: 138. 1959; Moldenke, Fifth Summ. 1: 176 (1971) and 2: 966. 1971; Anon., Biol. Abstr. 56 (1): B.A.S.I.C. S.254. 1973; Moldenke, Biol. Abstr. 56: 69. 1973; Moldenke, Phytologia 25: 224 & 230. 1973; Hocking, Excerpt. Bot. A.23: 292. 1974.

Cavalcante found this plant growing at 700 m. altitude, in flower and fruit in May.

Additional citations: BRAZIL: Pará: Cavalcante 2101 [Herb. Min. Ger. 36681] (Z).

SYNGONANTHUS WEDDELLII var. GRACILIS Moldenke, Phytologia 25: 224. 1973.

Bibliography: Anon., Biol. Abstr. 56 (1): B.A.S.I.C. S.254. 1973; Moldenke, Biol. Abstr. 56: 69. 1973; Moldenke, Phytologia 25: 224 & 230. 1973; Hocking, Excerpt. Bot. A.23: 292. 1974.

Citations: BRAZIL: Goiás: Irwin, Anderson, Stieber, & Lee 34259 (N--isotype, Z--type).

SYNGONANTHUS WELWITSCHII (Rendle) Ruhl. in Engl., Pflanzenreich 13 (4-30): 248. 1903.

Synonymy: Paepalanthus welwitschii Rendle in Hiern, Cat. Afr. Pl. Welw. 2: 102--103. 1899. Syngonanthus welwitschii Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Rendle in Hiern, Cat. Afr. Pl. Welw. 2: 102--103. 1899; N. E. Br. in Thiselt.-Dyer, Fl. Trop. Afr. 8: 262--263. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 244, 248, 284, 292, & 294. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 131. 1904; Pilger in Engl. & Prantl, Nat. Pflanzenfam. Ergänzt. 2, Nachtr. 3 zu 2: 41. 1908; Prain, Ind. Kew. Suppl. 3: 175. 1908; H. Lecomte, Bull. Soc. Bot. France 55: 595 & 597. 1909; Moldenke, Known Geogr. Distrib. Erioc. 22, 55, & 60. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 119 & 214. 1949; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 197--198. 1955; Moldenke, Résumé 147, 329, & 493. 1959; Moldenke, Résumé Suppl. 1: 23 (1959) and 4: 6. 1962; Moldenke, Fifth Summ. 1: 218 & 245 (1971) and 2: 592, 638, & 966. 1971; Moldenke, Phytologia 35: 308. 1977.

This species is based on Welwitsch 2447 from rather damp fields formerly cultivated with sorghum near Lopollo, Huila, Angola, in March or April, 1860, in flower, and is doubtless deposited in the herbarium of the British Museum (Natural History) in London. Welwitsch remarks that it is "a very social plant and plentiful along with pigmy Cyperaceae and Commelynaceae". Rendle asserts that it is "Distinguished from P[ae]palanthus Wahlbergii by its pigmy size, few-flowered heads with white involucre bracts, and absence of sterile style-arms". Brown (1902) cites only the

original collection, adding that the type locality is at an altitude of 5500 feet. Hess (1955) says that "Es handelt sich dabei um die kleinste der afrikanischen Syngonanthus-Arten: sie wird bloss 1—2 cm hoch; die Sepalen der ♀ Blüten sind nur 0,6—0,6 mm lang; S. Welwitschii wurde seither von keiner andern Fundstelle bekannt und ist mit keiner andern afrikanischen Syngonanthus-Art nahe verwandt." He cites Hess 52/1358a from 1820 m. altitude on a river tributary slope, flowering in May. He says that the species "ist nur vom Plateau von Huila (Serra da Chela), Angola, bekannt". The fungus, Ustilago eriocauli, is said to infest it.

It is worth noting here again that Stapf (1931) gives "1906" as the publication date for the Pilger (1908) work cited above. The Lecomte work (1909) is often cited as "1908" and, indeed, it was presented to the Society on November 13 of that year, but according to the "Index Kewensis" was not published until the following year.

Citations: SIERRA LEONE: P. Jaeger 184 (An). ANGOLA: Huila: Welwitsch 2447 (B--isotype, Mu--isotype, Z--isotype).

SYNGONANTHUS WIDGRENIANUS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 256. 1903.

Synonymy: Paepalanthus widgrenianus Körn. in Mart., Fl. Bras. 3 (1): 454. 1863. Dupatya widgreniana (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya widgreniana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 454—455 & 507. 1863; Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 315. 1871; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 29, 202, 245, 256, 284, 292, & 294. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 420. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Alph. List Cit. 1: 223. 1946; Moldenke, Known Geogr. Distrib. Erioc. 19, 31, 55, & 60. 1946; Moldenke, Phytologia 2: 374. 1947; Moldenke, Alph. List Cit. 2: 412 (1948), 3: 935 (1949), and 4: 1180, 1288, 1301, & 1304. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 93 & 214. 1949; Moldenke, Phytologia 4: 334. 1953; Angely, Fl. Paran. 10: 15. 1957; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 109, 282, 329, 352, & 493. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Angely, Fl. Paran. 16: 77 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 202. 1965; Moldenke, Fifth Summ. 1: 176 & 487 (1971) and 2: 596, 638, & 966. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1163--1164 & Ind. 21 & 28. 1972; Moldenke, Phytologia 31: 408 (1975) and 35: 455. 1977.

[to be continued]